

Practice Problems for Exponents, Roots, and Logarithms
from www.topmath.info

1 What can x be, if $x^3 + 1 = 0$?

2 A number, u , has 8 added to it to produce a second number. The cube root of the second number is -0.8 . What is u ?

3 A number, t , has 11 added to it to produce a second number. The fifth root of the second number is -0.2 . What is t ?

4 A number, s , has 17 added to it to produce a second number. The cube root of the second number is 0.7 . What is s ?

5 A number, y , has 20 added to it to produce a second number. The fifth root of the second number is 0.3 . What is y ?

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6 If $x^2 + x = 72$, what are the two possible values of $x^2 - x$?

7 What is the square root of 900?

8 What is the square root of 225?

9 What is the cube root of 274,625?

10 The logarithm base 4 of 61 is closest to what integer?

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11 At the beginning of a week, George has some money. Every day, George spends money in such a way that there is only $\frac{1}{5}$ of the previous day's amount left. After doing this for 2 days, George has \$.75 remaining. How much did George have at the beginning?

12 Let $x > 0$. If $\sqrt{x}/(x^4) = x^y$, what is y ?

13 What is 8 cubed?

14 What is 50 cubed?

15 What can x be, if $x^2 - 81 = 0$?

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1 ANSWER: -1. EXPLANATION: The number whose cube is 1 is 1. Because x^3 must be negative, x must also be negative.

2 ANSWER: -8.512. EXPLANATION: The second number is -0.8 cubed, or -0.512. This is 8 greater than u , so we subtract to get the answer.

3 ANSWER: -11.00032. EXPLANATION: The second number is -0.2 to the fifth power, or -0.00032. This is 11 greater than t , so we subtract to get the answer.

4 ANSWER: -16.657. EXPLANATION: The second number is 0.7 cubed, or 0.343. This is 17 greater than s , so we subtract to get the answer.

5 ANSWER: -19.99757. EXPLANATION: The second number is 0.3 to the fifth power, or 0.00243. This is 20 greater than y , so we subtract to get the answer.

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6 ANSWER: 8 and -9. EXPLANATION: You can factor $x^2 + x$ to be $x(x+1)$. These are consecutive integers that multiply to a product of 72. The first two such integers that come to mind are 8 and 9, and of course, -9 and -8 form the other solution.

7 ANSWER: 1764

8 ANSWER: 4,900

9 ANSWER: 421,875

10 ANSWER: 3. EXPLANATION: Note that $4^3 = 64$, and no other integer power of 4 is anywhere near as close to 61.

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11 ANSWER: \$18.75. EXPLANATION: Work the problem backward from the end of the time period. Start with the ending value of \$.75, and multiply by 5 a total of 2 times. Since 5^2 is 25, you can simply multiply \$.75 by 25 to obtain the answer.

12 ANSWER: -3.5. EXPLANATION: The square root of x is $x^{(1/2)}$. You divide powers by subtraction, so the answer is $1/2 - 4$.

13 ANSWER: 512

14 ANSWER: 125000

15 ANSWER: -9 or 9. EXPLANATION: Remember that both negative numbers and positive numbers have positive squares."